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JOHN N. DALTON, GOVERNOR

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Editorial

HUNTERS VS. FISHERMEN?

House Joint Resolution 164 instructed the Commission of Game and Inland Fisheries to study the "often dangerous" conflict between waterfowl hunters and recreational fishermen. Hunters and fishermen have stood united against all sorts of attacks against their sports and the wildlife resource. Are they now really battling each other?

The potential conflict of interest was fanned into flame by the early duck season first established in 1976. These few warm days in October are prime fishing as well as hunting time. Bass fishermen in the decoys was a favorite joke but to some it apparently was no joke.

In addition to soliciting written comments from its field force, the Game Commission scheduled a public hearing in Williamsburg. The facts that emerged were:

1. Conflicts are more apt to occur on narrow tidal rivers and creeks and on Back Bay where blinds and fishermen are numerous.
2. Boats travelling past such blinds are a more frequent aggravation than are fishermen actually fishing too close.
3. Most flagrant (potential exchange of shots) situations are caused by a few inconsiderate individuals.

Typical of the suggested remedies were these:

1. Legislation to prohibit fishing during duck season or within 500 yards of an occupied blind.
2. Prohibit bass fishing tournaments during the duck season.
3. Some type of zoning for certain areas such as the Chickahominy River banning fishing except on Sundays during the duck season.
4. Hunters and fishermen and the Game Commission to work out a mutual cooperation plan without resorting to legislation.

After analyzing all the facts and comments, the Commission agreed that the last proposal was the best suited to the limited size of the problem. Mutual cooperation and chastisement of those anglers who do not show common courtesy should be sufficient to cool down the few cases of flaring tempers during fall and winter months on our public waters. The Game Commission will be working toward this end — and we hope so will hunters and fishermen. It would be particularly helpful in the cooling process if sport fishing organizations refrained from holding fishing tournaments except on Sundays during waterfowl seasons where the conflict is most acute. There are enough outside threats to both sports that effort should not be wasted by sportsmen bickering among themselves.

Letters

SLOB MONEY NOT NEEDED

Over the years, we have lost a bull and other farm animals to people who called themselves "hunters."

Now your September editorial implies we have to put up with all this in order to keep from rocking your bureaucratic boat down in Richmond.

Robert T. Dennis
Amissville

I'll be darned if I want someone hunting in an area I'm hunting in who is too stupid to pass a hunting proficiency safety test! And as for those too lazy to take a test, they're the same ones too lazy to ask permission to hunt on private lands, too lazy to buy their hunting license and stamps, too lazy to pick up their litter after a hunt and too lazy to hunt in the fields, forests and marshes as they stand in line along our highways within spittin' distance to their trucks and radios. These are the same SLOBS that *Virginia Wildlife* is so quick to point out as our own worst enemy! Pass the cost on to the rest of us — I've never known anything that was worth having to come easy or cheap.

Coleman W. Wall
Richmond

My purpose in the September Editorial was neither to attack nor advocate hunter proficiency testing but to point out that it is a complex issue. I personally feel that safety training and proven weapons proficiency will be required before the year 2000. I also forsee resident license fees of $25 or more and restricted access to most public hunting lands. Even now hunter numbers are decreasing. Increasing fees and restrictions may accelerate this decline.

The anti-hunters enthusiastically support efforts to eliminate slob hunters. The only point of disagreement is how many there are. — H.L.G.

ANOTHER CLAM RECIPE

I just received your issue with the clam chowder recipe. Omit the celery, tomatoes, thyme and parsley unless you want to call it Manhattan Clam Chowder. To the bacon, onions, and potatoes add regular milk, a little evaporated milk and a bit of butter, salt and pepper. That's clam chowder!

Barbara W. Eldredge
Chatham, Massachusettes

A WORD OF PROTEST

Up until now I have enjoyed your Conservation Magazine, but the cover on August is disgusting. I will not let my grandchildren or great-grandchildren see it, for it is in my opinion very much out of order.

Clay Quinlivan
Amston, Ct.

AN UNUSUAL READER!

I do not fish, hunt, camp, backpack, walk trails, photograph wildlife, feed birds, trap animals, nor identify plants and trees — but I enjoy your magazine thoroughly.

Dr. Hal Oakley
Manassas

A LITTLE CONFUSION

Sharon Higgins sure does get around with that yacht of hers! (August) As a former Chesapeake Bay yachtsman, I must say that an overnight cruise to the Solomon Islands would be a remarkable accomplishment. I trust that she was referring to Solomons, Maryland and not the South Pacific Islands!

Dr. L. M. Lucas
Alexandria

I have to confess to a deep and abiding love affair for the chain pickerel. Not only a fine battler in its own right, the lean and vicious looking fish often saves the day when the bass aren't hitting — and unless you're a professional basser who can stand hours and hours of no strikes, in the hopes of some lunker eventually deciding to feed, you know very well that there are a lot of days on the water that need saving.

I had always taken pickerel from bass lakes, changing only lures and speed of retrieve when deciding to pursue the chained lightning, but fishing the same coves and backwaters and pad beds that I had plumbed for bass. It was often rewarding — enough so that I saw no real reason to change my pickerel techniques. I was in for a rude awakening, an awakening to the fact that I had been missing some of the hottest action I had ever seen in fresh water fishing. That awakening came from Roy Weil.

Roy is a building inspector from Baltimore, Maryland, and one of the hardest driving anglers of my acquaintance. We had spent several hours trying to get a bass larger than a pound to come out of Lake Bonnie, on Maryland's Eastern Shore, which appeared to be in one of its periodic fishing slumps. When Roy suggested that we try something else, I was game.

"What did you have in mind," I asked. "Dynamite?"

"No. Let's go wade the Choptank."

"Why?"

"I lost a patch bass there last weekend." (Under the Maryland Fishing Awards Program, a patch bass is one that exceeds five pounds, and earns the angler a very attractive jacket patch. The program is open to an angler from any state who takes the fish in Maryland waters.) "It had to go over six pounds."

"I'm in the mood for a patch bass," I said. "I just hope he's hungrier than his relatives in the lake."

"Well, if he isn't, there's always lots of pickerel."

Pickerel! That magic word (to me, anyway). And so, twenty minutes later we were up to our knees in a stretch of the Choptank River just north of Goldsboro, Maryland.

The first strike was the beginning of a long and exciting day, not to mention the twenty-one pickerel that we released to fight again. Wading slowly upstream so the water that we cast into wouldn't be muddied by our passage, we cast to every hole in the bank, fallen tree, log jam and patch of pads we saw, cranking the lures back to us like madmen, and more often than not being rewarded by savage strikes and acrobatic fish for our troubles. Since that day I have been back to the Choptank many times, as well as trying the same techniques on other rivers, and have never found this sort of fishing to be anything short of excellent.

There are certain aspects of stream fishing for pickerel which are peculiar to this sort of fishing, and which the lake fisherman may not have run across. These aspects are essential to success when pursuing chain pickerel in shallow streams and backwaters of rivers, and, once they are firmly in mind, they are not at all hard to follow.

The first essential is simply that the angler must get wet. All of the really great pickerel streams I have fished have been shallow — at any rate, no deeper that 3 to 3½ feet — and, characteristic of pickerel territory, are fringed with some of the thickest trees, thorns, and high grass imaginable. There is no way to hit the best pockets from shore, and, since many of the pickerel will lie parallel to the shore anyway, there isn't any way to present the lure properly to a

BY LORING D. WILSON

CHAINED LIGHTNING

pickerel that might be lying almost directly under foot, beneath the bank you are standing on.

If you fish in the spring or fall, when the pickerel seem to literally fight each other to get to the plug, waders are the answer. However, bear in mind that you will be crossing some pretty thick log jams and bumping into submerged brush, so be prepared for occasional rips and holes in the waders.

In regard to tackle, just about any reel capable of throwing the various plugs you will be using is fine, but the rod should be as short as possible. The streams are often so narrow, and the brush and trees so thick, that a long rod will interfere with the casting.

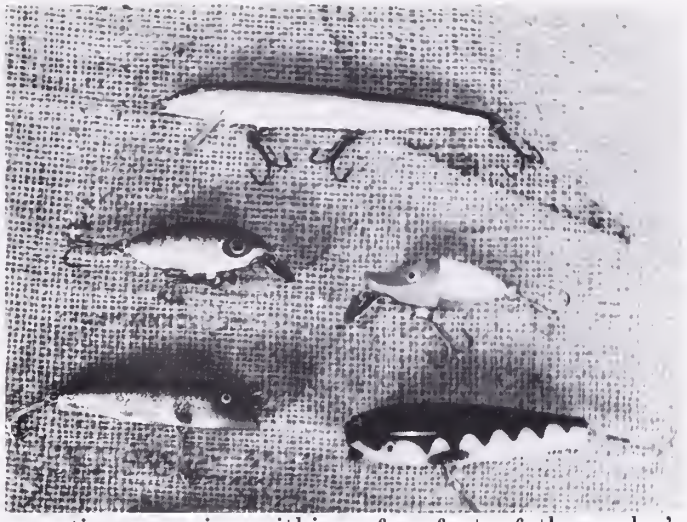
Learn to cast sidearm or underhanded — just the opposite from fishing with a buddy in a boat. You will have enough trouble with underwater snags without having to deal with tree branches as well.

Line should be in the six to ten pound category. The fights are always fast and furious, but because of the close proximity of angler to fish, not overly long in duration so lines are seldom cut. For this reason, Roy doesn't use a wire leader, since the few plugs lost to fish don't outweigh the fact that wire leaders interfere with the action of the light plugs he uses, and cause fewer strikes than when the lures are unhampered. The same holds true to a certain extent for snap swivels: although they make changing of the lures easier, they do interfere with proper action, and when the lure becomes involved with snags and brush, the line should be cut back to eliminate the abraded portion, anyway. The Duncan Loop and the Improved Clinch Knot are the best terminal knots for this sort of fishing, with preference going to the Duncan Loop, once again because of the action of the plug.

Lures used should be extremely shallow runners: the various floating thin minnow imitations, such as the Rebel, Rapala, Hellcat, and the like, in either silver or gold; and the balsa alphabet plugs, which do not dive as deep as their plastic counterparts. All alphabet plugs may be used, and the chrome finishes are especially effective, but they cannot be cranked too fast or they will snag the various structures that crowds most of these areas, just a little below the surface.

Structure is the key to this sort of fishing, just as in bass fishing, but there is a lot more structure to deal with. A sunken log, a tree half in and half out of the water, a shoreline fringe of pads, a deep hole in the center of the stream, or an undercut bank with tree roots in the water, can each harbor pickerel. And although the pickerel, like his larger bretheren, is largely a loner, the abundance of food and the abundance of structure means that the pickerel population will be relatively close together in a good stretch of water.

Every angler for pickerel has had the experience of having a pickerel follow the lure almost to the rod tip, sometimes striking several times on the same retrieve before taking the lure firmly or finally flaring off. This happens in stream fishing as well, with the fish



sometimes coming within a few feet of the angler's legs.

Nevertheless, in spite of their belligerent attitude, when fishing stream structure the angler is better off following the lead of the bass fisherman and casting beyond the likely looking structure, then making the retrieve as close to the structure as possible. A slow swim to within a foot or so of the structure, and then a fast darting, bobbing "escape" gives the impression that the smaller fish has suddenly spotted the predator and is trying as hard as possible to get away. The strikes at times like this are slashing and violent, with the pickerel sometimes hitting hard enough to actually clear the water.

Deep holes often harbor really large pickerel, and should be treated like any other structure. The plug should be thrown into the shallows beyond the hole, swung to the edge, and then jerked violently through the deep water. While not always as productive as fallen logs or undercut shorelines, the holes are well worth working because of the size of the fish frequently found in them. Some pretty large bass, too, hang out in the protection of the deep water areas of these shallow rivers.

Most of the river fishing is done upstream, since the silt that thinly covers the sand and gravel bottoms of these shallow rivers is quite loose, and, when stirred up by the passage of the angler's feet, sweeps downstream in a cloud that obscures just about everything. This cloud not only removes the angler's view of submerged structure and holes, but startles the fish as well, so that even if they see the lure they may not strike.

Stream fishing for pickerel is one of the most exciting forms of freshwater angling, because of the savagery of the strikes, the willingness of the fish to take the lure, and the aerial acrobatics they put on because of the shallow water. Pickerel of almost six pounds have been taken with an acceptable degree of regularity, and a six pound pickerel on a light rod in two feet of water is like hanging onto chained lightning. Try it yourself when the bass won't bite, but be careful. It can become addictive.

Common Milkweed *(Asclepias syriaca)* Large pods with tough warty skin. Common along raodsides and in open fields.

Canada Lily *(Lilum canadense)* Easily recognized by the large three-parted seed capsules which will usually still retain some of the papery-thin seeds. Found in meadows and wet woods, growing up to six feet in height.

Pink Lady's Slipper *(Cypridedium acaule)* Solitary woody capsule on stem about one foot tall. Six horizontal ribs form framework of capsule. Found generally in wooded areas.

Northern Bugleweed *(Lycopus uniflorus)* Dried flower clusters form rings around square stem at regular intervals. Tiny individual flowers difficult to distinguish. Found in wet areas up to two feet tall.

A Hunter's Guide

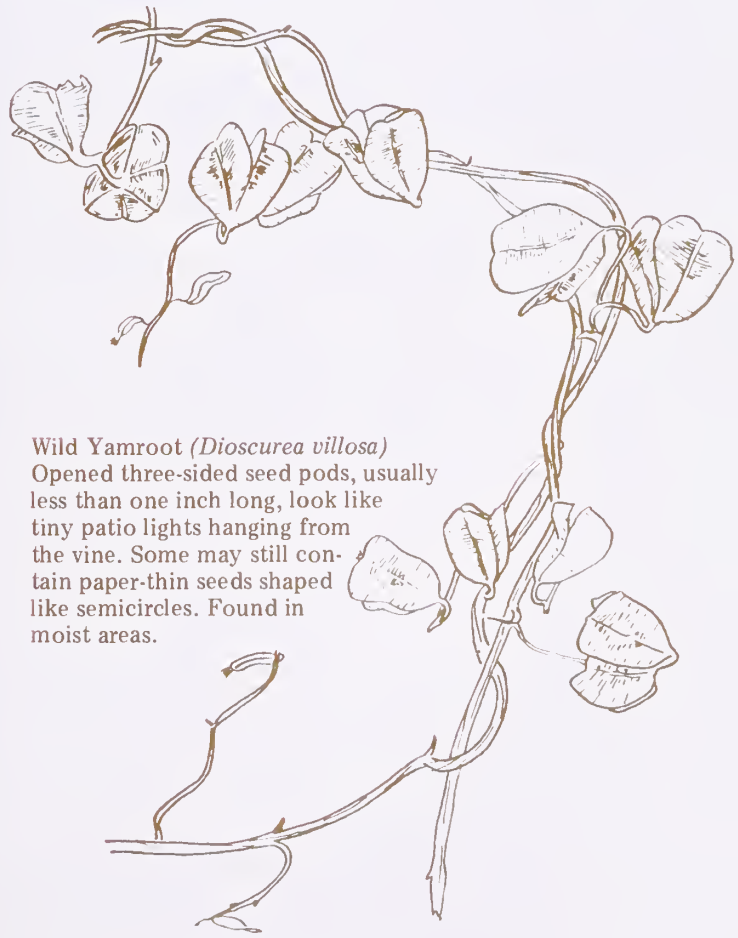
Hunters afield in the winter months often ignore a pastime that could greatly enhance their enjoyment of the precious time spent in outdoor pursuits — searching for and identifying wildflowers.

While it's true that these plants are not in their most beautiful state, with a little practice and a good guide to wildflowers even the most inexperienced hunter can soon point out to his field companions the

Common Dodder
(Cuscuta pubescens)
Dead vine usually found wrapped around other plants. Small round seed capsules grouped in dense clusters at various points.

Indian Pipe
(Monotropa uniflora)
Woody seed capsule with four or often five parts at end of short straight stem usually not exceeding six inches. Found in wooded areas.

Downy Rattlesnake Plantain
(Goodyera pubescens)
Distinctive basal leaves (green with white veins) last through the winter and are good key to identification. Papery seed capsules arranged on single stem in spike, six to ten inches tall. Grows in wooded areas.



Wild Yamroot *(Dioscurea villosa)*
Opened three-sided seed pods, usually less than one inch long, look like tiny patio lights hanging from the vine. Some may still contain paper-thin seeds shaped like semicircles. Found in moist areas.

plantains and mildweeds they come across while in search of game.

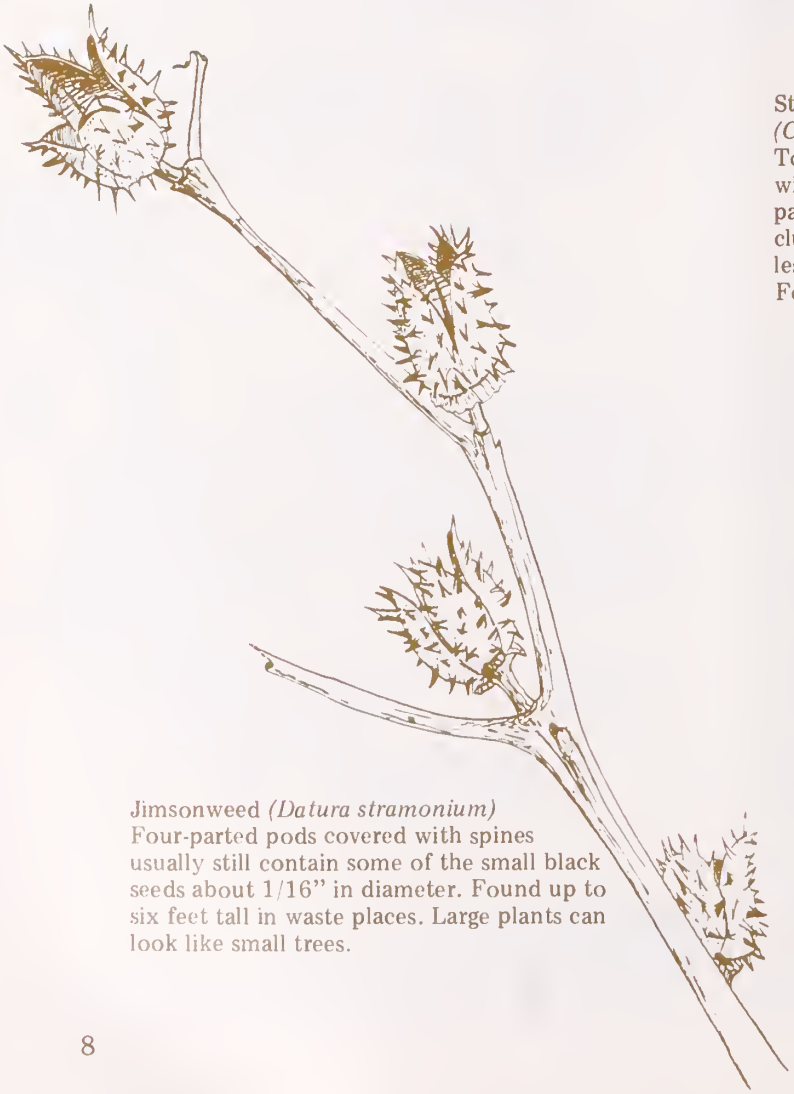
Pictured here are some of the more common wildflowers in their dried winter-time condition. If you're really interested, get a copy of a good wildflower guide, such as *Peterson's Field Guide to Wildflowers.* Also helpful are *Weeds in Winter* by Lauren Brown and *A Guide to Nature in Winter* by Donald W. Stokes.

to Wildflowers

BY DONALD G. JEWELL

Seedbox *(Ludwigia alternifolia)*
Distinctive. Top view of seed capsule looks like square with a hole in the center of it. Through this hole, the seeds are released. Found up to three feet in moist soil.

Striped Wintergreen
(Chimphila maculata)
Toothed evergreen leaves (green with white veins). Four or five-parted capsules borne in small cluster on erect stem usually less than eight inches tall. Found in wooded areas.



Jimsonweed *(Datura stramonium)*
Four-parted pods covered with spines usually still contain some of the small black seeds about 1/16" in diameter. Found up to six feet tall in waste places. Large plants can look like small trees.

RABBITS IN THE RAIN

BY BOB GOOCH

I picked up the phone and a voice out of the past greeted me.

"How about coming over for a rabbit hunt," suggested Sidney Skeen.

I didn't need time to consider an invitation like that. We quickly agreed on a date, and I marked my calendar as we talked. And then we got into a brief discussion about school days of yesterday.

We had been marble-playing friends then — and we took the game seriously. So seriously, in fact, that we played for keeps. Each player contributed a marble to the pot in the center of a ring drawn in the dust of the school playground, and we took turns trying to knock them out of the ring. During a brief recess between classes, a good shot could fill his pockets with shiny marbles — much to the consternation of his fellow players.

It was raining when I drove into Sidney's yard on the appointed morning, but nothing short of a downpour could have kept me home. I joined Sidney for a cup of coffee while we awaited the other hunters, and their dogs.

Friendly little beagle hounds are the heart of a cottontail hunt, and Sidney had seen to that. He did not own beagles, but he had been jumping rabbits all fall in the young pines on his property. A neighbor, David Haney, owned a pack of crack beagles and he would join us for the hunt.

He and his son, Scott, soon arrived with their eager dogs. Leon, Sidney's son, completed our party.

Too many hunters?

Hardly. The game plan calls for the hunters or dogs to jump the cottontail, let the dogs have their chase while the hunters enjoy the hound music, and then take the rabbit as it returns to the area from which it is jumped. Rabbits can generally be depended upon to follow this pattern, though some will take more circuitous routes home than others. Predicting the exact return route is just about impossible, and this is where a sizeable party of hunters helps. They can spread out and cover the more likely routes.

Scott opened the tailgate of the pickup truck and a half dozen pint-sized beagles rolled out and headed for the nearby woods. We followed them through the

dripping hardwoods toward a forest of young pines.

As the hounds disappeared in the thick cover, the hunters joined in the hunt, stomping on brushpiles, kicking honeysuckle patches, and wading through briers. Good hunters often jump as many cottontails as the dogs.

Suddenly David let out a whoop and called the dogs. A couple of nearby ones responded and the chase was on. It developed rapidly.

Rabbit hunters seldom shoot cottontails on the jump, though the scurrying bunny may present a good target. The hound music is as vital to the hunt as the kill — and the chase is good for the dogs. David, a good shot, could have taken that rabbit easily.

The other beagles quickly joined the chase and the bedlam rolled off into the distance — through the pines, into an open field, and across the field into a hardwood forest.

We moved quickly through the pines, soaking up water from the dripping trees, and took up stands at the edge of the field where we had good visibility.

While the return route of a circling cottontail is just about impossible to predict, experienced hunters can spot the more likely ones. The rabbit will usually avoid open areas if it can, and take advantage of cover as it heads for home. It is often forced to cross logging roads, forest clearings and other open areas, however, and the hunting party should attempt to cover all such areas. Even then it may sneak behind a hunter or dart across a narrow road so fast he doesn't have time to get off a shot.

An elevated spot such as a stump, brushpile, or small knoll makes a good stand — because of the better visibility.

I was covering a lengthy stretch at the edge of the field. The light cover offered good visibility, but the problem was predicting where the rabbit would dart from the field into the woods.

I was anxiously switching my gaze first to the right and then to the left when I saw Leon raise his gun and fire.

I quickly joined him to admire his bag.

We waited for the beagles, methodically following the trail in a workmanlike manner to the point of the kill. Leon held the rabbit up for the dogs to nuzzle. Satisfied, they drifted off in search of other game.

The eastern cottontail, *Sylvilagus floridanus*, the most common rabbit in America, is the predominant species in Virginia. It furnishes probably more than 99 percent of the fun for beagles and beagle owners.

The range of the New England cottontail follows the Appalachian Mountain range south into western Virginia, and there are a few marsh rabbits in the Dismal Swamp area. There are reportedly also a few snowshoe rabbits in HIghland County, but it is the eastern cottontail that vies with the gray squirrel for the number one spot among the game animals of the Old Dominion.

"As the hounds disappeared in the thick cover, the hunters joined in the hunt. . . ."

The cottontails's fortunes have suffered in Virginia in recent years, in spite of the high reproductive capabilities of the little animal.

"Spotty" is the term most often used to describe the rabbit hunting propects and it is, unfortunately, accurate.

Cottontails are abundant just about everywhere during the summer months. First there are the young ones darting in and out of edges, preyed upon by cats and dogs and run down by automobiles. But a healthy cottontail population can stand these losses, and even

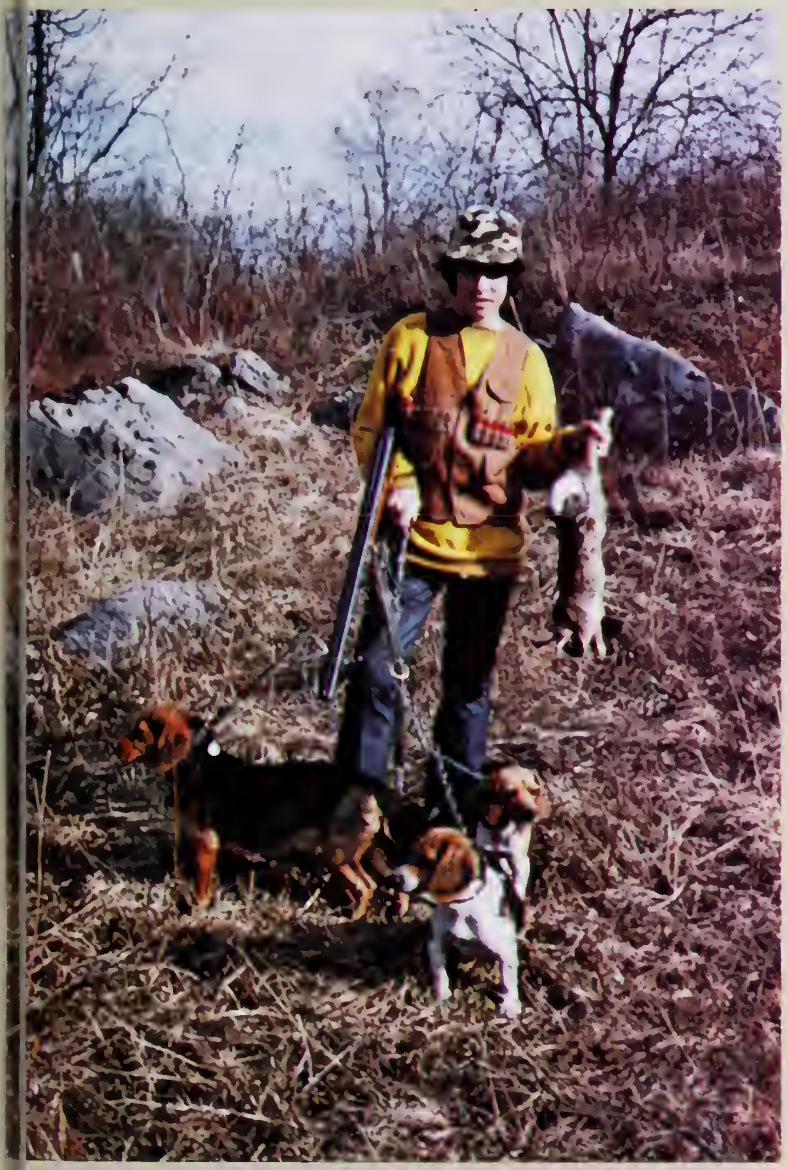
> "I spotted the rabbit in the distance, hopping slowly through the pines, but headed my way."

in late summer mature rabbits are still abundant. By the time the season opens in November, however, rabbits are scarce except in isolated areas.

The patch of young pines we were hunting that rainy morning was one of those exceptions.

A comprehensive study conducted recently by the Department of Fisheries and Wildlife at Virginia Polytechnic Institute and State University produced some good reasons for the problem, but few workable solutions. It disclosed, for example, that rabbits are highly susceptible and exposed to over 170 disease-causing parasites. An attempt to eliminate 170 different kinds of parasites from Virginia's rabbit country would be futile. Burning can apparently eliminate most of them temporarily, but the widespread use of fire is not practical.

Photo by Jim Wilson



It was now the dogs' turn to route out a bunny — and they did so quickly.

One of the little hounds suddenly squealed in delight and bounded off into the pines. This chase would take a different route — almost the reverse of the first one. We would have to look for open areas in the woods for a possible crossing shot.

I found an old road, long neglected, between the young pine forest and some older pines, and settled down to wait.

Rabbits often run well ahead of the beagles. The slower hounds are seldom a threat to a heathy rabbit, and it has no trouble maintaining a safe distance. Usually the rabbit just hops along, taking its time, resting and listening often, and darting across open areas.

This one did just that.

My thoughts were interrupted by a rustle in the weeds behind me. Out of the corner of my eye I caught a flurry of motion, and swung quickly to get a glimpse of a scurrying rabbit diving head-long into the thick pines.

No chance for a shot there!

As the morning progressed, my fellow hunters one by one bagged some game. Next David got a fat bunny, and then Scott followed suit. Sidney didn't have a gun, being content to enjoy the outing and the beagle music. And then Leon scored again, and I was beginning to feel a bit embarrassed.

I had spotted rabbits — but always out of range, or brief glimpses where there was no chance for a shot.

My gun barrel was still clean when suddenly a big cottontail rolled out of its form directly in front of me. It would have been an easy shot, but I decided to follow the example set by my hosts.

I yelled for the dogs, got a couple of nearby ones on the track, and then scrambled for a likely stand.

The chase was a long one. Once I thought I saw a flurry of motion — and then the dogs, hot on the trail, dashed by to confirm it. I tightened my grip on the gun and waited for the second pass.

This time it was easy.

I spotted the rabbit in the distance, hopping slowly through the pines, but headed my way. I waited, hardly daring to breathe, until it was well within range and dropped it with a single shot.

A glance at my watch told me it was time for lunch.

Wondrous Woodie

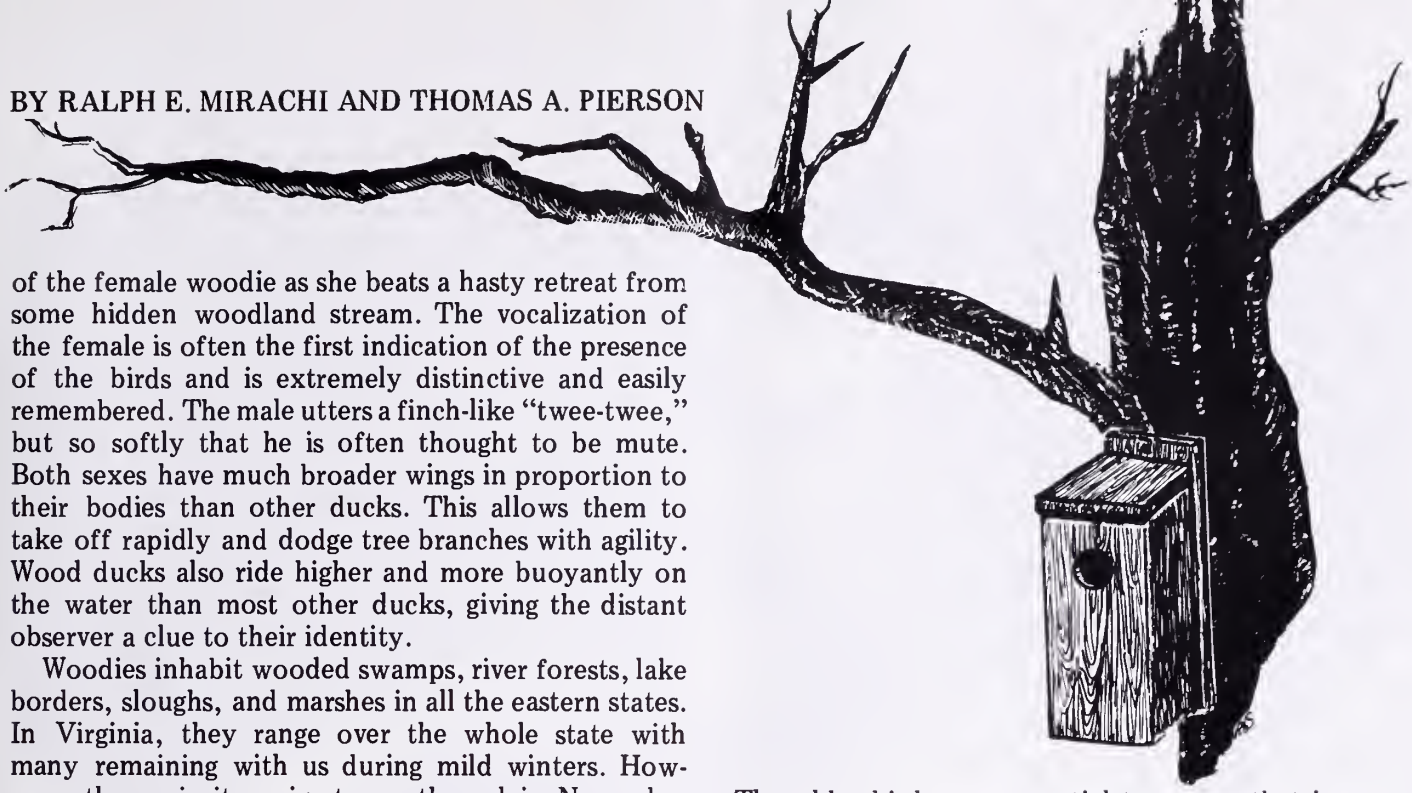
The late afternoon sun was just beginning to disappear behind the mountains along the New River, adding a fresh crispness to the November air. We were on an island in the middle of the river working steadily to complete our blind in preparation for the upcoming duck season. A movement above caught our eyes as a flight of eight ducks flew directly overhead, winging straight upriver. They were followed shortly by another flock of five birds, and another flock of seven and another. . . they kept coming until we had counted well over two hundred ducks. The birds all flew in the same direction, never hesitating, as if destined for a common meeting place. The rather large head held high, the short neck and white belly, and the large square dark tail allowed us to identify the passersby as wood ducks. The woodies, squealers, or summer ducks, as they are often called, were apparently on their way to a favorite roosting site up river. Needless to say, they provided us with a beautiful and unforgettable display and heightened our expectations for the upcoming waterfowl season.

Besides being one of the most ornate and interesting members of the waterfowl family, the wood duck serves as a model example of the conservation ethic, wise use of a renewable natural resource. Before passage of the Migratory Bird Treaty Act between the United States and Canada in 1918, wood ducks were on the verge of extinction. The treaty gave the wood duck complete protection and reduced duck hunting seasons from eight months to about three months. Additionally, law enforcement was upgraded and market hunting became a thing of the past. By 1941 the wood duck population had rebounded sufficiently to allow limited hunting of the species in 14 states. Although problems such as the clearing of bottomland hardwoods and the drainage of swamps still beset the wood duck, its numbers have stabilized and even increased in some areas within the last decade. During the early 1970's the average adult bird population in the United States numbered approximately 1,400,000. This numerical increase over the last 50 years is due to numerous reasons including the propensity of the hen to renest if the previous nest is destroyed and even possibly, a second time after a successful nesting, the ability of the species to "pioneer" new areas, and by continuing proper management of the wood duck resource.

Whether the woodie is hunted with gun or camera makes little difference, for it is a welcome and beautiful addition to anyone's "bag." The wood duck is the most highly colored and perhaps the most beautiful North American duck. The male has a created head adorned with hues of regal purple and green with white lines extending from the base of the bill and from the back of the eye to the rear of the crest. The white of the throat sweeps back and upward on both sides of the head. The eyes and the base of the bill are red, completing the head coloration. Traces of the black and white separate the burgundy-and-white chest from the bronze sides. The deep purple feathers of the back and tail contrast sharply with the white breast and belly. Though the hen is drab in comparison to the male, she is elegant in her own right. White rings surround the eyes and trail behind like colored teardrops on the sooty-gray, crested head. The chest and sides are grayish-brown, flecked with dashes of white, while the underparts are pure white.

Many a woodland wanderer in Virginia has been startled by the loud, squealing "wee-ee-ek, wee-ee-ek"

BY RALPH E. MIRACHI AND THOMAS A. PIERSON



of the female woodie as she beats a hasty retreat from some hidden woodland stream. The vocalization of the female is often the first indication of the presence of the birds and is extremely distinctive and easily remembered. The male utters a finch-like "twee-twee," but so softly that he is often thought to be mute. Both sexes have much broader wings in proportion to their bodies than other ducks. This allows them to take off rapidly and dodge tree branches with agility. Wood ducks also ride higher and more buoyantly on the water than most other ducks, giving the distant observer a clue to their identity.

Woodies inhabit wooded swamps, river forests, lake borders, sloughs, and marshes in all the eastern states. In Virginia, they range over the whole state with many remaining with us during mild winters. However, the majority migrate southward in November and return northward in February. During much of the year, wood ducks are found in pairs or in groups of 4 to 5, although hundreds may gather at fall and winter roosting sites.

Most woodies breed their first year, with pair bonds beginning to form as early as late October and continuing to form throughout the fall and early winter. 90% of the birds have mates by late February.

Females return to the same area to nest year after year and they may even return to a nesting cavity they have used previously. The hen prefers a natural cavity with an entrance of 10-20 square inches, a depth of 10-20 inches, and an area of 40-50 square inches at the bottom. Cavities 30 feet or more above ground are preferred over lower ones, although nests have been found at heights ranging from 2-65 feet. Woodies successfully and readily use properly built man-made wood or metal nest boxes erected on poles or nailed to trees in suitable habitat. It is important, however, that the boxes be made as predator-proof as possible.

After the eggs have hatched, the female broods the young for about 24 hours before she leaves the nest cavity and calls to the young. Upon hearing the hen's calls, the ducklings spring upward from the cavity floor toward the entrance, gaining successive toeholds until they reach the opening. They may have to jump as much as 60 feet to the land or water below, but they are rarely injured. The hen then leads the brood to secluded water areas, as much as a mile away. Broods usually break up after the fifth week.

Wood ducks feed on the land or in shallow water rather than diving beneath the surface to obtain food. As ducklings, they eat almost entirely animal matter for six weeks before switching to a vegetarian diet. The older birds are so partial to acorns that in some areas they are called acorn ducks. Flooded bottomland oak groves are favored feeding areas, although they will enter dry land oak groves to feed. In addition, the seeds of bald cypress, hickories, button bush, arrow arum and bur seed, together with wild mulberries and grapes are readily consumed.

As hunting and non-consumptive demands continue to increase, proper management plans are necessary to insure adequate supplies of wood ducks for species perpetuation and recreational use. The basic requirements necessary to sustain wood duck populations are a dependable water supply, the optimal variety and quantity of food and cover and suitable nest sites. Many of these needs can be satisfied by preserving bottomland hardwood areas and preventing the drainage of swamps and wooded sloughs. In addition, game agencies may temporarily drain beaver ponds, plant them with Japanese millet, and allow them to refill. They may also dike over and flood lowland hardwood stands rich in mast to produce a palatable food crop. In many areas nest boxes may be erected in habitat devoid of suitable nesting cavities.

As with other ducks, hunting for wood ducks is best in the early morning and just before dark. Mallard decoys and the mallard call work well drawing many in shooting range. Although you may have fast action early in the season, woodies tend to wise up quickly and are not fooled as easily later on.

The next time you happen to add a woodie to the "bag," whether by gun or camera, you can thank the conservationists of the past and present for your trophy. Hopefully, through wise use of the resource, future generations of Virginians can enjoy this regal member of the waterfowl clan.

Squirrel Supreme

BY JUANITA F. COLVIN

The hunt is over. You've stored away many fond memories of the early morning crisp air, leaves crackling and rustling underfoot; a grey furry fluff scuttling up a tree, barking his annoyance at your intrusion. What better way to rekindle all these memories than at a dinner centered around the results of a good day's hunt!

There is nothing quite as savory as a pot of stewed squirrel with dumplings, or a pan of crisp fried squirrel and gravy. However, many people overlook the variety of ways to prepare this little critter, other than frying or stewing.

The lean, tasty meat of the squirrel has to be tenderized first by parboiling. I've found a way to tenderize the meat and also prepare enough for several meals at the same time: by using a crockpot.

The average crockpot (mine holds a gallon) will take an average of seven to ten cut up squirrels, depending on their size. When cooked from seven to eight hours on the low temperature setting (or 3½ to 4 on high) the tender chunks of meat literally fall from the bone. By removing all the bones and placing the meat in several containers to be frozen for future use, you not only save space in the freezer, but you eliminate the parboiling stage; thus saving time when preparing the meat later.

Have you ever tried a zesty squirrel salad sandwich? (Very similar to chicken, and sure to be a favorite of the children.)Or a scrumptious squirrel casserole?

The following recipes offer a real variety. Try a "different" dinner tonight, and delight all the squirrel hunters in your family!

THERE'S MORE TO COOKING SQUIRREL THAN JUST FRYING OR STEWING. SQUIRREL SALAD, ANYONE?

SQUIRREL SALAD
1 cup diced squirrel
¼ cup (or 1 small) onion, minced
¼ cup finely diced celery
(or you may substitute 1 tsp. celery seed)
1 tbsp. sweet pickle relish
about ½ cup mayonnaise
Salt and pepper to taste
(Makes four hearty sandwiches.)

SQUIRREL CASSEROLE
2 cups diced squirrel
2 cups cooked green lima beans
2 cups prepared mashed potatoes
1 tsp. salt and ½ tsp. pepper
1 cup grated sharp cheese
Place squirrel in bottom of casserole dish, sprinkle with salt and pepper. Add limas, then mashed potatoes. Cook in preheated oven for about 20 minutes, at 350 degrees. Add grated cheese and continue cooking for 10 more minutes, or until cheese melts and starts to brown. Garnish with parsley or green pepper rings.

SKILLET SURPRISE
Meat from 3 squirrels, cut into chunks
3 tbsps. butter or margarine
½ cup chopped onion
1 tsp. salt, ½ tsp pepper
One can cream of mushroom soup
½ cup water
Cooked rice or noodles
In skillet, saute onions in butter. Add squirrel pieces and lightly brown. Pour can of cream of mushroom soup and ½ cup of water over mixture; cover and let simmer for 20 minutes. Serve over rice or noodles.

SQUIRREL PATTIES
1 cup diced squirrel
1 egg, slightly beaten
¼ cup finely chopped onion
½ cup bread or cracker crumbs
Salt and pepper to taste
Combine all ingredients and shape into patties. Fry in skillet on medium high heat about 4 to 5 minutes on each side. Serve on toasted bun with lettuce and tomato slice.

Personalities BY FRANCIS N. SATTERLEE

Herb Foster, host of the Commission's television program is shown here during a recent broadcast urging viewers to leave wild animals and birds in the wild and not to attempt to make them into pets, both an illegal and inhumane practice.

Herbert A. Foster

Education Supervising Warden, Patrick Henry District

At the time of his birth, in Plattsburg, New York, Herb's father was employed by the American Safety Razor Company in that area. His earliest memories of this gentleman were the countless times he saw him leaving to hunt waterfowl or to fish on famous Lake Champlain, situated in that part of New York that borders on Vermont and Canada.

When young Foster was in the first grade, his father's company moved their operations to Verona, Virginia and the family settled in Staunton. Often during those growing-up summers, the Fosters would return to New York to visit Herb's maternal grandparents. It was during these times that his father began taking him fishing on the Lake Champlain of his childhood memory. As he grew older, the elder Foster also taught him about hunting. The pair went afield as often as possible, but the "hunts" that Herb remembers most were those in Bath County during the Thanksgiving holidays.

Herb graduated from Robert E. Lee High School in Staunton and subsequently received a B.S. Degree in Distributive Education from VCU. He worked for a time in the management training program of a large retail chain store operation but abandoned that endeavor in 1972 when he joined the U. S. Army Reserve Program. This required him to participate in a six-month-long period of Basic Training at Fort Jackson, South Carolina. While on leave from this program, he learned of an opening as a Game Warden with the Game Commission, applied and was accepted.

His first assignment was to Mecklenburg County and it was just at that time that he married the former Sammye Bragg from Waynesboro. In 1976, Herb was promoted to Sergeant and was assigned responsibility for Lunenburg, Mecklenburg, Brunswick and Greensville counties.

January 1, 1978 marked another high point in Herb's life for on that day he was promoted to Lieutenant and became the Education Supervising Warden for the Patrick Henry Commission District. On that day he also assumed the job of host of the Commission's television program "All Outdoors," aired each Friday at approximately 6:45 a.m. on WTVR-TV Channel 6 in Richmond. In doing so, he replaced Lieutenant Lewis Brandt who had hosted the show until his promotion to Major in the Law Enforcement Division of the Commission.

To Herb, the most rewarding aspect of his job lies in serving the public, especially by bringing to justice those unsavory lawbreakers who have given an unjustified bad name to the thousand upon thousands of honest sportsmen and women.

Herb and Sammye have one son, Nathan, age 2, and they live in Highland Springs.

BLUEGILLS FIGHT POLLUTION

BY BOB PITNER

That popular little pole-bender, the bluegill, has been recruited by a group of Virginia Tech scientists to serve as part of an early-warning system against water pollution.

The system, called biological monitoring, teams a dozen fish with a minicomputer to detect spills of poisonous industrial wastes into streams and lakes. Its developers at Tech's Aquatic Ecology Group say the system can prevent environmental disasters such as the Kepone tragedy at Hopewell. They estimate its cost at $50,000 to install at a factory and $25,000 a year to operate — a bargain compared to the costs of a major spill.

The new monitoring system places fish and a computer between a factory's discharge or treatment system and the stream into which the discharge will flow. The fish, between two and four inches long, swim in individual tanks through which industrial effluents are passed. Sensitive electrodes in the tanks pick up the fishes' breathing patterns, which are monitored by the computer.

If a substance in the water causes abnormal breathing, the computer sounds an alarm, warning the factory to shut off or divert the effluent until the cause of the pollution can be determined and corrected.

The idea originated with John Cairns Jr., a 54-year-old zoologist and fly fisherman who heads the Aquatic Ecology Group. Cairns compares his system to the use of a wine-taster by ancient rulers to prevent a once-popular means of assassination, or the use of canaries to detect dangerous gases in coal mines.

Cirns says he began to think about using fish as water-tasters about ten years ago after completing an 18-year stint of aquatic research at the Philadelphia Academy of Natural Sciences. Much of his early work had involved establishing standards for water quality and techniques for measuring the effects of pollution. The tests provided a means for pointing the finger at industrial polluters, but did little to help factory operators prevent poisonous spills.

"I decided that what I needed to do was to help prevent people from doing wrong in the first place," Cairns recalls.

Most monitoring of industrial wastes has involved testing the chemical and physical content of the water. The problem with that approach is there are so many potentially toxic substances in industrial wastes that it is virtually impossible to monitor them all.

The other approach, biological monitoring, uses aquatic animals, usually fish, to determine if anything is poisoning the water. Then scientists search for the type and source of the pollution. But most biological monitoring techniques require enough pollution in the water to kill the test animals. Cairns wanted something more sensitive — something that would sound the alarm in time to prevent serious environmental harm.

"There are a lot of little signals fish give out before they die," Cairns says.

After several false starts, Cairns and his colleagues found that breathing rates were easy to monitor and were a good indicator of water conditions. Muscles that move the fish's gills emit tiny electrical impulses in the water. These impulses are picked up by electrodes attached to the side of the tank, amplified and transmitted to the computer.

The computer records the frequency and intensity of breathing and establishes a normal pattern for each fish. If the breathing pattern changes drastically, it is a signal that something is wrong. The computer also is attached to instruments that monitor the temperature, the dissolved oxygen and the acidity of the water.

Kenneth L. Dickson, 34-year-old group assistant director, says chemical and physical tests are needed to determine just what is bothering the fish. He compares biological monitoring to a physician checking a patient's blood pressure.

CAN FISH JOIN THE POLLUTION FIGHT?

"It might not tell him exactly what is wrong, but it surely does tell him to start looking," Dickson says.

To see how the system worked in the real world, the group moved its fish in 1975 from the laboratory to the Celanese Fibers Company's Celco Plant on the New River at nearby Pearisburg, Va. The factory is a large producer of acetate fibers for cigarette filters and synthetic cloth. Acid spills had occurred at the plant, and Celanese was revamping its treatment system at the time of the experiments.

Although no accidental spills occurred during two years at the plant, the system worked according to plan in a series of simulated accidents. If a real spill had occurred, toxic wastes could have been stopped before they reached the river. A catastrophe could have been avoided.

Cairns and his group are putting what they learned at Celanese to work with a $170,000 grant from the Army to produce a compact, mobile monitoring system housed in a trailer. The trailer can be pulled up to almost any factory, "fine-tuned" and plugged into the discharge system. The system will be tested at the

Illustration by Duane Raver

nearby Radford Army Ammunition Plant, one of 14 such plants now manufacturing explosives for the Army.

Edward Bender, a research biologist at the Army's Chemical Systems Laboratory, Aberdeen, Md., says the results of the tests will be studied closely by the Army and the Environmental Protection Agency (EPA). "We would like to see this system, if successful, considered for incorporation as a portion of a wastewater treatment system as a management tool in all Army ammunition plants," Bender says.

Such frequent adversaries as EPA and the Manufacturing Chemists Association also have helped finance the Aquatic Ecology Group's research. Donald Mount, director of EPA's Environmental Research Laboratory in Duluth, Minn., says a legal requirement for some form of biological monitoring of industrial discharges soon "is a very distinct possibility."

Cairns envisions hundreds of bluegills swimming around in tanks near factories within the next few years.

"The more unpleasant things that happen, the more likely it is that people will demand more protection — something living between you and the toxicant," he says.

WALK

As we watched, the mottled brown and gray bird frantically gathered speed and put both distance and cover between him and us. He dodged and weaved in an airborne ballet and was gone.

I'm almost saddened, in my hunter instinct, to say that I didn't feel the least bit of regret at having no opportunity to shoot at this woodcock, this wild, secretive creature of overgrown floodplain and thick woods. The experience was complete without shot and shell, without thought of anything except the joy of watching this bird react to the threat of our presence.

Some other time, in the due course of the changing seasons, we may be armed and resolutely hunting this elusive quarry. For now, though, the experience is printed, like a newsreel feature, in our minds' eyes, to be relived at will.

This was the third of four woodcock Harry and Scoopie Bailes and I had flushed during our February Sunday afternoon hike in the woods. We had headed south from the Bailes' home near Keswick, some ten miles east of Charlottesville. We walked right up to Interstate 64, through mature pine stands, and then cut east and north until we came to a small, clear stream. Following the streambed we explored the banks and floodplain and were surprised at the extent of beaver activity. These furry logging engineers had felled dozens of trees, from one inch saplings to mature timber with diameters up to fourteen inches. Some of the larger, heavier limbs had been cut into smaller, fireplace size lengths. With a little financial backing, these industrious beavers could have established a thriving firewood business.

Harry pointed out that the beavers' activities were getting somewhat out of control. Upstream dams created by these energetic builders had backed water into pastures, inundating pathways and creating bogs. Some limited trapping has been authorized by the owner of this acreage in hopes of maintaining a better balance between beaver power and people needs.

Our hike actually had started as a mission to check for turkey signs in preparation for the spring gobbler season. Harry had killed a deer in these woods near the end of last season and, in the process of finding a good deer stand, he came across numerous areas where turkeys had scratched up the ground in search of food.

We found some more evidence of the turkeys' presence and noted a couple of likely spots to use as bases of operation against the wily toms.

There were plenty of deer tracks, too. Naturally, these stirred the hopes of both Harry and me for success during the next deer season.

The sun was still high as we completed our turkey reconnaissance, so we continued on our trek and found the creek we used as a guide back to the vicinity of our starting point.

On the way, near a beautiful knoll covered with huge beeches nearly to the stream's edge, we scared a covey of quail into scattered, intermittent flight. They seemed reluctant to disturb their feeding. Even as we approached, part of the covey flew, though nearly half remained to fly singly or in groups of two or three. You could almost hear a couple of them saying that they knew there was no real danger, since the hunting season was closed. Smart alecks! Actually, in that thick honeysuckle and briar cover, most of the quail could have stayed put and gone completely undetected in the excitement — maybe some did.

As we neared the end of our afternoon jaunt, we came to the boggy areas created by the beaver dams. Here we surprised four ducks and sent them in hurried flight, graceful outlines moving swiftly against the deep blue sky.

Our hike had led us in a four mile circle through mature, open woods of oak, poplar, maple, beech and hickory; through pine woods which had replaced logged hardwood areas, into tangled floodplain growth rank with briars and,

ON THE WILD SIDE

BY BOB BELTON

finally, across squishy bogs created by the beavers.

We certainly had been on a path less traveled than most and in woods that were "lovely, dark and deep" enough to bring out the poetic urge in most anyone.

We had seen woodcock, quail and ducks in the flesh and abundant deer, beaver and turkey signs. We stood amid grassy hemlocks on a hillside pasture above the pond and watched the ducks flap silently into the horizon. We were rewarded with a deep satisfaction at sharing the domain of the wild creatures, getting to know a little better the natural world around us.

Photo by H.L. Gillam

The Finest Hunt

BY W. B. NICHOLSON

What field adventure provokes the most pleasant memories? ...This hunter attempts to find out.

Photo by Jack Tuckish

The sun was warm on my back as I sat thinking in the comfortable old chair. The tasty food. The good dogs. The exciting hunts. It was difficult to pick out one hunt that had been noticeably better than all the rest.

I remember the cold, dark morning I settled against an old stump, anticipating the first inquisitive bark of the grandfather squirrel. How long ago was that? Must have been at about age fifteen. I had scouted that particular den tree with care and was sure that it would be akin to a squirrel hotel. As the sun rose, and the mist began to clear in the bottom, the woods began to awaken. I had my thumb on the safety ready to let go at the first elusive grey ghost. I almost dropped the gun as the old granddaddy jumped into the leaves and ran forward just behind me. He sounded like a rampaging bear. When I whirled around to identify the attacker, he looked at me angrily and scampered up a nearby tree. I never did get a shot off. That was certainly one of the more memorable days, but was it the finest?

Maybe it was the time my uncle took me rabbit hunting. The pack of beagles sounded like a group of drunken trumpeters as they romped off in pursuit of ol' brer rabbit. It was only yesterday that we stumbled through the dense honeysuckle yelling, "hike in here. Hike in here, Reuben." When my uncle suddenly hollered, "Tallyho," I stood frozen as the patch of brown burst across my boot and around the nearby brush pile, the hounds close behind. "Tallyho!" I still remember that.

What about the time I stood on the deer stand holding a second hand, double barrel twelve that weighed a ton. The hounds bayed frantically as they picked up the scent. As they drew closer, my knuckles turned white as I gripped that old gun. It was at my shoulder long before I ever saw the "gigantic" buck bounding at me. I remember waiting endlessly for it to come into range, sure that it was going to run over me. It abruptly changed direction as I fired the first shell, but kept on going. My second shot didn't seem to make any difference either. I'm sure no one else ever felt the way I did at that moment. But all that quickly changed as he stumbled and fell headlong into the brush. That was a heck of a thrill, but was it the finest hunt?

The rocketing, whirling sound no one can forget as a brace of ducks race high overhead. The perfectly placed decoys. The trembling Lab. The frozen lips as I put the call to my mouth and blew hesitantly, knowing they just have to come down for a better look. As they swung about and started back, I remember crouching even deeper into the boat. My fingers so numb, afraid I'd miss, particularly with the rain and sleet dripping steadily off my cap. The tremendous booming sound as the too-heavy pump gun hammered at my shoulder. Did two ducks really fall? Did I really do that? Maybe that was the one to remember.

It was only yesterday that I walked across the old corn field with my brand new 20 gauge side by side slung over one arm. As boys are prone to do, I was day dreaming about one thing or another, most likely girls, when I stepped on that flapping, whirring covey of quail. My heart jumped into my throat and stopped beating. I fired both barrels simultaneously, and maybe yelled something. I'm not sure just what. I've walked onto many a covey, and the same thing always happens, although I'm now able to refrain from firing the gun in fright. Even today the sound of a covey going up under foot is enough to make one's hair stand on end. But the memory of the first still lingers on.

Can anyone forget their first dove hunt? I still remember my introduction to the daring, erratic dove. My uncle, one or two cousins, and several others had taken up stands around a large corn field. As the dove began to fly, we began to hammer away with our trusty big bores. Five boxes of shells and four hours later I had a badly bruised shoulder and six doves to show for my efforts. For pure action and excitement that Saturday has to stand as a hunt to remember. As I grew wiser, I did manage to improve my ratio of shots to birds — barely.

Of all the ways to start off the day, perhaps none is more eye opening than to crawl out of a warm sleeping bag on a frosty morning. The hasty search for long-handles, trousers, socks and boots is enough to awaken the hardest sleeper. During my first hunting and camping trips, I found it difficult enough to climb out in the morning, but it was painful indeed to climb out during the night in response to nature's call. As I pranced up and down from one foot to another, I had the impression that the ground was paved with pine cones and rocks. Then, later during the morning, after finally getting up and out of the tent, to find the coffee pot frozen, the matches wet, and the wood damp was enough to make one swear off hunting and seek more gentlemanly pastimes. Talk about memories.

It was later that my son, Colin, and I scouted out another big den tree with so many holes in it, it looked like the Holiday Inn, Virginia Woods. Colin was eager with excitement. This was his first hunt. As I walked back to camp leaving him beside a small maple, I remembered my first hunt. I later heard two quick shots, but it wasn't until half a pot of coffee later that he came strutting back into camp. His gun was propped over his shoulder, his eyes wide with excitement — one fat squirrel gingerly held between two fingers. That had to be the finest hunt.

It Appears To Me

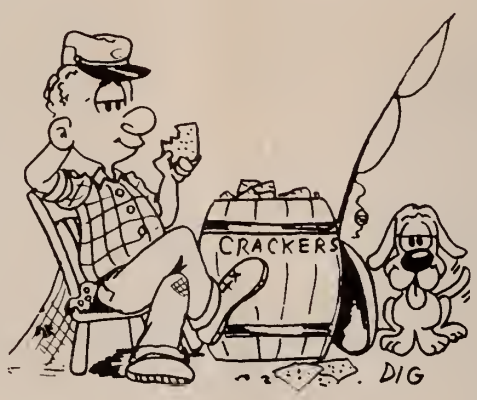
By Curly

. . . . . A PERSON OUGHT TO HAVE ONE

Parents . . . if you have a problem convincing your younguns that "Bambi, as advertised" does not really exist and that wild animals are just that, there is a free book available that addresses the problem. "Let It Be. . . Wild and Free" may be obtained from the National Wildlife Federation, Dept. WF, 1412 16th St. N.W., Washington, D. C. 20036. This four-color pamphlet explains among other things that sweet and simple baby wild animals can indeed grow up as savage and dangerous adults and that holding wildlife in captivity is unlawful.

Talk about perfect timing, the Office of the Secretary of Commerce and Resources for the Commonwealth has just published a dandy coastal resources. . . and it is free and available right now. To get your copy that will enable you to "bone up" on the issues that will come before the General Assembly in January request the following: "Virginia's Coastal Resources Management Program (Questions and Answers) Office of the Secretary of Commerce and Resources (PPD) Ninth Floor, Eighth Street Office Building, Richmond, Va. 23219.

The folks with the Shell Oil Company have produced a pamphlet that should be of interest to just about all of you. Entitled "The Energy Book" this little dandy covers a wide variety of energy-related topics. Naturally it is mostly about oil energy and the problems and pleasing aspects of "black gold," but the publication also covers solar energy, coal, insulation and even has a handy list of energy saving tips all of us should keep in mind. The Energy Book is free for the asking from Shell Oil Company, P.O. Box 10, Dept. V, Houston, Texas 77001.



Another in the series of brochures which are being produced by the good people over at the Virginia Institute of Marine Science is "The Bluefish." Earlier this year VIMS produced "The American Shad" in cooperation with the Virginia Seafood Council which is also cooperating on this publication.

"The Bluefish" is available free from Virginia Institute of Marine Science, Sea Grant Advisory Service, Gloucester Point, Va. 23062.

. . . . . FOR YOUR BOOK SHELF

The United State Fish and Wildlife Service has recently published a 64-page manual which details information on how to develope and maintain good environments for people and wildlife who live in suburban and urban areas of the United States. "Planning for Wildlife especially in undeveloped areas.

This book will be extremely useful to people in a wide variety of occupations but should be especially valuable to conservation organizations planners and developers for it focuses on ways to accomplish the desired project while at the same time preserving the habitat (urban or rural) for fish and wildlife. "Planning for Wildlife. . . " is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402 for the price of $2.40 or from the Information Transfer Coordinator, Office of Biological Service, U. S. Fish and Wildlife Service, Washington, D. C. Ask for the publication by name and Stock Number 024-010-00471-1.

Another most interesting book is also available from the Government Printing Office and this one has been produced by the National Park Service seemingly just for all you history buffs. "With Fire and Sword" is the story of a very little known battle of the American Revolutionary War which was fought in South Carolina near Kings Mountain. It was written by Wilma Dykeman who stated in the prologue, "After Kings Mountain no one would claim again that there was an untapped reserve of loyalist sentiment out there in the hinterlands waiting to gathered in to the royal ranks. For the British the message was a bitter harvest of mistaken judgement and misplaced hopes. To the Americans, it was a revelation of possible ultimate victory." It really isn't too early to begin your Christmas shopping and "With Fire and Sword" can be ordered for $3.00 from the Superintendent of Documents, U. S. Govement Printing Office, Washington, D. C. 20402. The Stock Number of this one is 024-005-00710-5.

. . . . . AND THEN

John Muir said it and it really seems so very fitting during these times when all of us are pressured from every side and for so many different reasons . . . "Keep close to Nature's heart, yourself; and break clear away, once in a while, and climb a mountain or spend a week in the woods. Wash your spirits clean. . ."

Growing Up Outdoors

BY SANDY COLEMAN

Illustration by Diane Grant

The Eastern Shore

Matt and Amy ran out of the small motel down to the dock situated within a few hundred yards of their door.

"This is a really neat place," Matt said to his excited little sister. "Look at all those boats. You know, they make their living by fishing and clamming. We sure don't have anybody at home who has a job like that."

Amy, busy watching a fisherman coming in to dock his boat for the night, agreed.

"It's really neat here this time of year. But, I wish that we could have come when the ponies were swimming. When do they do that, anyway?" Amy asked.

"They do it on the last Wednesday in July. The ponies that live on Assateague the rest of the year are herded across the channel to Chincoteague. Then they are auctioned off to families and go away to their new homes. The ponies that are left, swim back to Assateague. The island has a National Wildlife Refuge on it and the ponies are very well cared for," Matt explained to his young listener.

"Like Misty," said Amy. "How did the ponies get to the island? I have never heard of them living anywhere else."

"Well, the legend is that a Spanish ship wrecked about 400 years ago somewhere offshore. The ponies supposedly swam to Assateague where they have been ever since." Matt scooped down to pick up an oyster shell that was serving as gravel.

That afternoon, the brother and sister were walking with their parents on the Assateague Wildlife Refuge.

"Look!" Amy said excitedly. Matt followed her pointing finger to see a large, chunky, black and white pony standing on a grassy dune. The eager twosome were able to watch the pony for several minutes before he walked slowly away.

"Wow, that really was Misty!" Matt and Amy's mother and father smiled to themselves.

Early that evening, the family walked along Assateague's famous beach. "Look at all the seabirds, Amy." There were many birds flying above the water and many more on the beach.

"There are gulls and, look, there's a heron!" Matt was proud that he was able to identify the birds.

"Hey, Mom," Matt said as the family was driving back to their motel. "What are we going to do tomorrow?"

• "Well, I think I can promise you that you will enjoy yourself," their Mom smiled as she spoke. "We're going out on the boat of friends of ours. We'll be able to fish and visit one of the small islands located off the Eastern Shore, which is what this part of Virginia is called."

The next night as Matt was drifting off to sleep, he thought that his Mom had been right. The day had been a memorable one.

They had begun by fishing and Amy had caught the first two fish of the day, a croaker and a sea trout. Matt's luck hadn't been quite so good.

Later in the afternoon, the family had visited Cedar Island, a very small place that could be reached only by boat. Matt had been especially interested in an old Coast Guard Station located on the island.

"That was used during World War II to watch out for submarines," their host explained. Amy collected a brown bag full of shells, while their parents exclaimed over the many seabirds that they were able to observe.

"Can we come back again?" Matt and Amy asked as the family began the long drive home.

"We'll think about it," their Dad answered. "I think that we just might come back, though."

"Yeah, Matt. We can go fishing again and maybe you'll catch some more crabs," Amy giggled.

Matt, an indignant look on his face, thought to himself that next time would be different — but in the meantime, Amy might be a little difficult to live with. Well, she'd see, Matt promised himself.

CAN GROUSE BE MANAGED?

BY W. ALAN GUTHRIE, District Game Biologist

Professional wildlife managers are constantly searching for new techniques for more efficient management of all species of wildlife. This involves extensive research and much trial and error that will eventually produce valuable knowledge and equally useful management techniques.

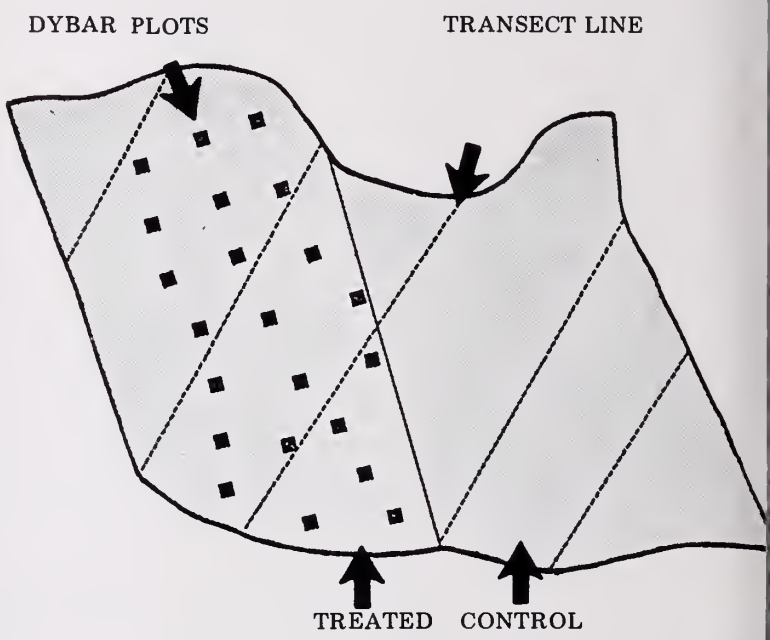
On the other hand, some of these efforts produce baffling results and leave badly confused wildlife managers bewildered and ready to give up. We often ask ourselves: why didn't that work? Sometimes we often overlook one of the most important aspects of investigative research — just what does the species being studied think of the idea? Unfortunately, wildlife species have never had the opportunity to sit down and read the current wildlife management textbooks. The grouse is one such recalcitrant species.

Many researchers have spent hours diligently working to develop new techniques that would be beneficial in working for better grouse management, with the ultimate goal of providing better populations of grouse for sportsmen to pursue. Unfortunately, many research projects do not produce the expected results.

Wildlife management, when compared to other more exact sciences, is quite new — we have to learn a little at a time, gain a step at a time, build upon our experience, and continuously study and research — always looking for newer and better answers.

One such research attempt is the Stony Creek Grouse Study. The objective of this project, begun in 1965, was to determine the effects of forest openings on grouse populations. As with all such projects, a treated area (one where the treatment or technique is applied) and a control area (where no work is done) were set up. The two equally large areas were laid off systematically, with transect lines permanently marked on each area. Field personnel walked the transect lines each month, counting grouse flushes and plotting them on a map. The observers also made note of weather conditions, the type of timber, forest overstory and understory conditions, along with any other pertinent information. These observations were noted for one year prior to any treatment so as to obtain "pre-treatment" data. Then the research was begun. In this study, application of a herbicide (Dybar) was made on 22 one-half acre plots. The plots were spaced at approximately equal distances throughout the entire 250-acre area. This treatment killed the timber on the land, allowing more sunlight to reach the forest floor, thereby stimulating understory growth of existing vegetation. The transect lines were walked monthly, counting grouse flushes and recording all of the data recorded previously. Thus, biologists could compare relative populations of grouse on the treated area with that on the control area. Additionally, comparisons could be made between populations of grouse on the area prior to treatment with that of the total area after treatment.

STONY CREEK GROUSE STUDY



Results of the study were not alarming. Those of us on the project expected to find an increased grouse population on the treated area, the assumption being that our treatment was a management technique that would simulate the type of habitat normally associated with "grousy" areas. Instead of finding an increased population on the treated area as compared to the controlled area, we found no significantly measurable increase. Population changes on the two areas were similar.

Despite the unexpected results, the information was of great value as it indicates that particular technique is not one to employ on a large scale with the objective of producing better grouse hunting areas. Therefore, researchers are left with the undeniable challenge of finding different research routes.

But until we come up with the answers, we must keep asking ourselves: what do we do to manage this puzzling, independent rascal? The research goes on.

Mill Creek

BY JUDY PRICE

Mill Creek Wilderness Study Area encompasses 4000 acres of Appalachian land. The ridges descend downward until the depths of the area are met in the waters of Mill Creek.

The boundaries of the Wilderness Study Area follow the dry ridgetops; from the Forest Service road on the west, along Pearis Mountain to encircle Angel's Rest, back across Wolf Creek Mountain again to the road. Along these lines drawn for wilderness are the peaks of the area, some lifting to nearly 4000 feet.

Angel's Rest is one of these, approximately 3533 feet at its height. It is a cliff of stone, of great slabs of stone, one set upon another, each supporting the one above, often precariously, with only one weather-softened point. Caverns are created, and the faces of great solid temples are created, perhaps not for the habitation of man, but for the polypodies and rock tripes, and for the angel's rest.

The small evergreen fronds of the common polypody and the mountain spleenwort hang from the stone, their root hairs strung through crevices, anchored in the bits of earth that have formed there. Some lichens have become a part of the stone, and some by threads attach themselves to it. There is color and design, there is texture and movement to mellow the cold, somber tones.

From the cliffs, the descending hills of oaks and maples and tulip trees can be seen; fiery in autumn, golden in spring, converging on the valley where Narrows and Pearisburg have grown. The Appalachian Trail, which transverses the area from the Forest Service road to Angel's Rest, drops sharply northeast with the land into the New River Valley, leaving the Mill Creek area.

At the base of the Wilderness Study Area, deep in the rocky gorge, is Mill Creek. The waters refected by the hills flow to it; the waters of Mercy Branch flow to it. It whispers its origin, almost inaudibly, flowing down. Mercy Branch whispers too from its source below Angel's Rest; flowing, sometimes underground. The hills approach, tightening their embrace. Mill Creek travels the tilted hollow, its tone silvered and clear. It is fed by small tributaries along the way, gaining volume and speed, clamoring over rocks, resting with native trout in pools, but always flowing down as Mercy Branch flows down.

From the cliffs, the descending hills of oaks, maples and tulip trees can be seen converging on the valley. . . . . .

And then there is thunder, the force of the water against the earth, waterfall into waterfall. Mercy Branch into Mill Creek, the meeting of the streams is resounded and orchestrated, and then the waters are subdued. The hills withdraw and Mill Creek flows northward to Narrows, to the New River and on.

There is a maze of trails through the Mill Creek area; many of them the overgrown roads cut decades before by logging. There are grooves in the land cut

by the rains, some holding water to muddle the trail. And there are two expansive clearings that cross the area, cut by the power companies.

During the first half of the 20th century, the Mill Creek area was logged, stripped of the aged oaks and hemlocks. The tree loss was considerable. It affected the land, changing the movement of vegetation, the evolving of life forms, destroying the habitat of the animals that need, or prefer, the distant canopy of ancient woods. But perhaps even greater was the de-

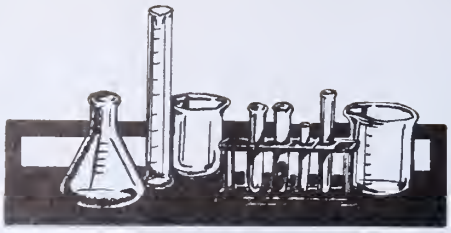
struction caused by the logging operation; the felling and dragging of logs across smaller trees and arbutus and rocky slopes, the cutting of roads that break the ground cover, that erode and alter the shapes of the land, that remain visible and damaging for centuries.

The ruin may have been excused, or dismissed, or accepted as it was throughout the Appalachians, except for the small town of Narrows. After the logging, erosion occurred. Masses of earth were lifted with each rain and swept into Mill Creek and down to the reservoir that supplied water for Narrows. Silt began to accumulate in the stream and in the reservoir. It was then that man began to feel the impact, the quake of disruption and he felt a need to revive the natural defenses of the land.

In 1952, trees were planted in the Mill Creek area to prevent further erosion. Maintained jointly by the U. S. Forest Service and the Town of Narrows, 3640 acres were reserved and given protection as a watershed for the town. The natural elixirs were allowed and encouraged, but restoration has not been complete. A virgin hemlock cannot be replanted. A climax forest cannot be sown. The scars remain today, two open wounds.

From the Mill Creek gorge, the power lines are only stripes across the sky, steel towers on the ridge. But across the rest of the area, they are long gashes in the forest; towers and wires and stripped land as far as man can see. They run straight, disfiguring even the maps they cross. For the Mill Creek Wilderness Study Area, these are the major sources of conflict. They stand clear-cut before the legal definition of a wilderness area, which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticable."

Through the gorge and through all this legal turbulence, Mill Creek runs fast and clear. The Dutchman's-pipes clumb and the hills fall and rise and the heavy fragrance of galax fills the air. And not one orchid knows words to define wilderness, not one heath or turkey or bear. But they know what is and what is not survival. If only man could now know the same.



ENDOCRINOLOGY

BY PATRICK F. SCANLON

Endocrinology, the study of hormones and their effects on an animal's body, has now come into it's own, as a valid and useful tool of wildlife biologists. The role it is creating is becoming ever-expanding as professionals and interested wildlife observers are now learning how to put this science to work for better wildlife management.

Much research work in the Department of Fisheries and Wildlife Sciences at Virginia Polytechnic Institute and State University is directed towards understanding aspects of endocrinology of wildlife and application of this knowledge to better management of wild species.

Knowledge of endocrinology is currently being employed in a number of management objectives. They are: (1) studying the implications of a possible interference between late nesting in mourning doves and the start of the hunting season; (2) augmenting fertility of captive wild species will not reproduce under confined conditions; (3) suppressing fertility of undesirable and pest species; (4) understanding mechanisms of hormonal control of the antler cycle in deer; and (5) use of measurements of hormone levels in blood to indicate reproductive conditions and stress in wild animals.

Crop development in pigeons, which is due to the hormone prolactin and results in the production of crop milk for feeding young, is indicative of post-hatching tending of young by doves, pigeons and their relatives. This unique phenomenon allows study of nesting activity after hatching and without the necessity for tedious observations of behavior. Research in the Department of Fisheries and Wildlife Sciences at VPI & SU is aimed at determining the persistence of crop development in mourning doves and will ultimately be used to minimize conflicts between late nesting in doves and the initiation of the dove hunting season in the state.

The possibility of applying knowledge of endocrinology to breeding of rare or captive species is fascinating and has potential use with rare and endangered animals, with animals for display purposes and with animals for research purposes. Such applications are widely used in domestic animals. Some reports exist in the literature on the use of hormones for induction of breeding in captive species such as the snowshoe hare, the Indian palm squirrel, the pocket mouse, and the lion. In the laboratories of Fisheries and Wildlife Science at VPI & SU, cottontail rabbits, gray squirrels, pine voles and white-tailed deer have been studied with varying degrees of success. These species have been chosen as model species because of their availability and the fact that all but deer do not readily breed in captivity.

The possibility that chemosterilization (i.e. use of drugs to suppress reproduction) could be applied to nuisance populations, is attractive to many wildlife managers. Hormones and synthetic compounds closely related to hormones are frequently used for chemosterilization attempts. Some success has been encountered by researchers in other laboratories in attempting to suppress reproduction in coyotes, pigeons, rats and seagulls. VPI & SU scientists have had some success in tests with foxes but attempts with woodchucks have not been very successful.

The role of androgens (male hormones) in controlling the antler cycle of deer has long been known. A new set of antlers grows and is shed during an annual cycle by deer. In fawns, androgens prime the pedicles and stimulate initial antler growths. Antlers then grow to the full size for that year. Androgen levels increase and the antlers harden. At this point the velvet is rubbed off. After the rut, androgen levels drop and antlers are lost. Immediately the pedicle heals over and antler growth recommences. Research at VPI & SU has established the critical levels of androgens at which antlers are rubbed out and at which antlers are lost.

In the early days of wildlife research, animals were sacrificed for study. Now with the advent of immobilizing drugs it is possible to capture animals for studies prior to their later release. Blood samples when assayed for hormones will reveal much about aspects of the animals' well-being. Progesterone (a female hormone) is indicative of pregnancy in deer and minimum levels for pregnancy have been established for diagnostic purposes. Androgens are indicative of breeding seasons in birds. Corticoids are indicative of stress in animals and determination of corticoid levels in blood is useful in some management situations. Work at the Department of Fisheries and Wildlife Sciences at VPI & SU is aimed at determining base levels for these hormones and also in determining the effect of immobilizing drugs on blood levels of hormones and also in determining the effect of immobilizing drugs on blood levels of hormones so that more accurate sampling may be done.

In conclusion, the science of endocrinology has an interesting and expanding place in the science of wildlife management and the application of endrocrinology knowledge as it develops can only enhance the management of wild species.

Outdoor Notebook

Museum Preserves World of Waterfowling

"Decoy making is an art form that's just being recognized, and through the artists whose work is preserved here we're keeping alive an important part of the heritage of coastal Virginia." So states John Maddox.

Maddox had just opened the Refuge Waterfowl Museum in Chincoteague, a unique treasure trove preserving the art and the spirit of waterfowling. A short distance away, thousands of migratory waterfowl come each winter to spend the cold months in the shelter of the Chincoteague Wildlife Refuge. And the museum is in a town which has produced scores of well-known wildlife artists.

Although the museum was just recently opened, Maddox had been toying with the idea for several years. "I guess the museum really got started at a hunting club I had at False Cape (south of Norfolk). I had several hundred old decoys down there and when the state condemned the club to make a park I went ahead with the idea for the museum."

There are more than 1,000 decoys in the museum, and the majority of them came from Maddox's personal collection. Many others were loaned by private individuals. "I started hunting when I was 16, and collecting decoys was just a natural extension of duck hunting. When hunting laws started getting strict, a lot of older hunters got frustrated with the sport and quit hunting. I'd buy their rigs and throw them up in the loft at the hunting lodge. Pretty soon there were hundreds of decoys in that loft."

Maddox also gets many decoys through friends who know he's a collector and keep an eye out for unusual blocks. "I had a friend who found a decoy while he was vacationing in Tahiti and he really thought he'd made a find. He brought the decoy back to me and when we researched it we found it came from Sears Roebuck."

Maddox's collection contains an amazing variety of decoys, boats, and hunting gear. There is even a display of Indian hunting implements, remnants from the east coast's first duck hunters.

Many decoys came from the market gunning era, when hunters used punt guns, live decoys, and duck traps to capture birds that were sold on the streets of Chincoteague. A huge antique gunning light mounted on the bow of a skiff recalls the time when night hunting was legal.

Another display features shore bird decoys used during the days when hunters took yellowlegs, dowitchers, turnstones, plovers, and other wading birds.

A special feature of the museum is Chincoteague carver Delbert "Cigar" Daisey. Cigar, Maddox says, will be carver-in-residence, working in a booth in the 7,000-square-foot museum. "Cigar and Dan Brown are at least one-third of the museum," says Maddox. "They helped me get it going, and when it looked like we wouldn't make it they kept hanging in there."

Cigar, obviously enjoying his task of meeting tourists and talking about ducking and waterfowl, is amazed at the interest generated in recent years in old decoys. He produces a record from a recent Massachusetts decoy auction and is incredulous at the prices, some decoys bringing several thousand dollars.

"Shoot," laughs Cigar. "We used to have hunting cabins out in the marsh, and on many a morning I used old decoys like these to get the fire going. You could take these cedar decoys, tap 'em with a hatchet, and they'd split right apart. Made great kindling."

Cigar laughs again. "That shows how smart I was."—*Curtis J. Badger*

Photo by Curtis Badger

Three Deer Limit

For the first time hunters in Virginia will be allowed to bag as many as three deer in certain counties this fall. Another less publicized change in the regulations allows the big game license tabs to be used out of sequence (No. 3 first, etc.) but only in counties where the season bag limit does not exceed the number of the tag. Thus the number one tab is required only for deer taken in counties with a one deer limit. In a three deer area it would be logical to use the No. 3 tab first and save the others for areas with a more restrictive limit.

"We hope confusion will be minimal," said Commission Law Enforcement Chief John McLaughlin. "The biggest problem may be that hunters who use them in the traditional 1, 2, 3 fashion will feel cheated at not being able to hunt in many counties as the season progresses," he added.

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The binder is available for only $4.50 from: Virginia Wildlife Binder, P.O. Box 11104, Richmond, Virginia, 23230.

Before You Hunt

Before you leave for that long-planned hunt, you have to be sure you have secured everything at home. Unless someone is staying at the home front, you should run through the following items to be sure you are ready to go.

At the top of the list is telling a few trusted people where you're going, how long you plan to be gone and when you expect to be back. This is a necessity for emergency/survival reasons.

Check your vehicle thoroughly before you take to the road. Among the items to check are lubricating fluids, tire pressure, spare tire, windshield wipers, lights, turn signals, fan belt, cooling system, shocks, mirrors, and, if you're trailering, the hitch and safety equipment. Carry along a few tools like a jack, lug wrench, screwdrivers of various sizes, wrench, pliers and so on. These can come in handy in your camp repairs, too.

Get a neighbor or friend to take your newspaper and mail. Or tell the Post Office to hold your mail and cancel your paper. It might also be wise to tell your local police or sheriff's department that you'll be away.

To make your home look occupied while you're away, set some lamps on timers through the house. Locate a radio station that signs off and on during "occupancy" hours such as sign on at 6 a.m. and sign off at midnight.

And another tip — list all the things you need to do and items you need to pack. Keep a pencil handy so that as you think of new items you can write them down and add them to your packing list for the trip.

A Hunter Cares

Earl Coleman, a 22-year old construction worker, was busy with his backhoe excavating for a bulkhead along a Norfolk, Virginia waterfront, a move calculated to protect a housing development from the sea.

Suddenly he noticed a young boy frantically waving to him, trying desperately to get his attention above the roar of the giant earth-moving machine. Concerned, he turned off the big motor to listen.

The excited youngster explained that Coleman was about to destroy a mallard duck's nest and seven mottled brown eggs.

When the young equipment operator returned to the task at hand he moved the big machine further down the waterfront, skipping for the time being the area in which the nest was located.

"I'll come back to that after the eggs hatch," he promised the boy.

Coleman's employer later approved his action.

When asked by a reporter if he was a bird lover or a conservationist, Coleman replied:

"Actually I'm a duck hunter, but I don't hunt with this big machine."
—*Bob Gooch*

Rare Redpolls

One of the delights of bird watching is seeing new or unusual species in your area. The winter of 1977-1978 saw some rare visitors to Virginia. Among these rare visitors were common redpolls *(Acanthis flammea)*. Normally the common redpoll is a bird of boreal areas which usually winters in the more northern states. Most bird watchers know the species as a winter visitor. The winter common redpolls were seen in Montgomery County, Virginia. This was the first record of the species in the county for 50 years.

The Common Redpoll is native also to the northern parts of Europe and Asia. There the species is known as the "redpoll" and 3 subspecies exist. European Redpoll populations do not winter as far south as those in North America though breeding populations exist in the Alps which is farther south than areas where breeding occurs in North America.

The species gets its name from the red cap which marks both the male and female. Males also have a reddish/pinkish area on the breast. Both sexes have an overall brownish appearance with considerable streaking especially of the breast, back, and rump. Both sexes have a black chin and this, together with the red cap, is diagnostic for species identification.—*Patrick F. Scanlon*

Coming Next Month

DECOY CARVING
Chincoteague's Cigar Daisy Helps Keep Alive an Ancient Art

GAME BIRDS — NUTRITIONAL SUPPLEMENT OF THE FUTURE?
A Health and Nutrition Expert Looks at this Fascinating Subject

BIRDING
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CANOES - THE QUICKEST ROUTE TO THE WATER

America is re-discovering one of its earliest means of getting around its waterways — the canoe.

There are upward of 1 million canoes in this country, and sales are nearing 100,000 units per year, according to the Boating Industry Associations.

Some manufacturers attribute this growing interest in canoeing to the same "back to nature" movement that produced booming markets for health food, wood stoves and backpacking equipment.

"There's no doubt that the urge to 'rough-it' plays a role in many canoe purchases. Canoeing provides a great combination of physical conditioning and enjoying nature," observed Marianne Napier, BIA market research director.

She noted, however, that there are many other reasons for buying canoes. "Price is certainly a major consideration. Canoeing is the most economical form of boating. It makes the ideal first boat for a young couple, or a small second boat investment for a more established family," Napier said.

"But versatility is probably the biggest single motive for buying a canoe. Finding a place to park your car is probably the hardest part of a canoe outing. There's no need to find a launching ramp or a mooring slip. Any waterway deep enough to float a log is fine for a canoe, and when that waterway peters out, you can always pick up the vessel and portage to the next," she added.

That versatility plus the shape of the boat and paddle, are about the only similarities between today's canoes and those of our forefathers. Birchbark and cedar have been replaced by durable aluminum, fiberglass, and, lately, by new aramid fibers.

Today's canoes would surpass the fondest dreams of a Father Marquette or an Iroquois brave, in their ability to grind their way across rocks and resist the elements. The average repair job on aluminum canoe requires only a rubber mallet; sandpaper and a gel-coat repair kit are usually all that's needed on fiberglass canoes.

As interest in canoeing grows, more and more federal, state and local government agencies are responding with marked and mapped canoe trails. The Interior Department's Wild and Scenic Rivers system is also helping to insure that paddlers will always have unspoiled playgrounds.

"There's really no mystery to the growing interest. Any sport which can provide either heart-pounding thrills or utter tranquility at a low price is bound to gain a big following," Napier concluded.

CAN YOU HUNT ON PRIVATE LAND?

BY CHARLES D. BAYS

I've done it, and I would be almost willing to bet if you do much hunting, you have too. You're out driving through the country and come across some really productive looking territory, only to pass it by muttering to yourself: "I sure wish I could hunt on that land this fall."

Maybe, if the right approach were initiated, this might just become possible.

Let me begin by stating that my methods of obtaining permission to hunt on private lands are certainly less than foolproof and there will be times that you will not be allowed to hunt regardless of your approach. But I do feel if the following principles are applied, the chances of enlarging your hunting territory can be greatly improved.

The first principle, as simple as it may sound, is to ask.

But think of it like this, the worst thing that can happen is to get a flat no. And no one really likes to say no. Even if the land is posted, chances are the landowner does not prefer this, but rather has found it necessary because of the irresponsible acts of a few vandals disguised in hunters clothes. Ask — chances are more than 50-50 that you will receive permission to hunt, at least on a trial basis.

My suggestion here is to line up your hunting, to do your asking, well in advance of the season. This requires extra time and effort, but most worthwhile projects do.

Look presentable — you may be invited in the house so be sure you're not wearing last years mud on your boots.

Be courteous — phrase your request like a request, not a demand. Remember, this is very much a one-sided affair, and you are on the receiving end.

Assure the landowner that you are asking permission to hunt only for yourself and that you will clear any guest with him before the hunt.

If you receive permission to hunt (and you might be pleasantly surprised how often you will), don't beat a hasty retreat back home or on to the next farm. Ask where to park your car, if there are certain fields he would prefer you not to hunt or if there are any other considerations to be honored.

Revisit the farm occasionally. At peak times for the farmer, such as haymaking time, offer to lend a hand. Quite often you can assist your friend by offering your job skills, services, or products at a cost advantage. Any gesture on your part helps to repay the landowners generosity and strengthens your sincerity and creditability.

Most of us have heard the following common sense rules all of our lives but in view of the prevalence of posted land, it might be well to review some of them.

1. Don't litter, not even cigarette or gum wrappers.
2. Close gates if you found them closed, leave them open if you found them open. (Open gates suggest stock is moving from one field to another.)
3. Be sure of your target; never fire close to houses, outbuildings, or stock. Be especially particular around dairy herds. Loud noises can excite mild cows and cause a drop in milk production, a sure way to lose hunting rights.
4. Don't take unauthorized friends with you. Never return to land you hunted as the guest of someone else. If you receive permission from the landowner and take a friend, remember, you are responsible for his conduct.
5. Be careful with fire.
6. Look up the landowner each time before you before you begin the hunt. This rule should apply even if you have hunted the land for years. Ask him to join you; he may prove to be excellent company and a valuable guide. (I've found this true almost 100% of the time.)
7. After the hunt is concluded, if your host is not with you, stop by and thank him for his hospitality. Offer him a fair share of the game. Dressing it is a nice gesture and is especially appreciated.

Contrary to the old saw, good news also travels fast. Establish yourself as an outdoorsman who respects the property of others, let consideration be uppermost in your mind at all times and new fields will open up for you.

JOHN W. TAYLOR

The Woodcock

Bird of the Month

BY JOHN W. TAYLOR

Alexander Wetmore of the Smithsonian, writing in 1962, tells of finding the fossilized bones of a woodcock in a Pleistocene deposit near Natural Chimney's Virginia. The Pleistocene was the period of the great ice age, when glacial conditions alternately advanced and retreated over much of the earth's surface. The bones are evidence that the whistle of woodcock wings has sounded over the Virginia hills for at least 1,000,000 years.

May they continue to sound for 1,000,000 more. For the woodcock is no mere bird. It is the mystery of the swamp at twilight, the spirit of the golden woods of indian summer. It is the warm breath of an April evening across the meadow.

Much of the mystery associated with the woodcock derives from its crepuscular habits. When the shadows of dusk begin to fall, they become active, flighting to feeding grounds or, in spring, performing their spectacular rites of courtship. It is during these evening flights, the bird silhouetted against the sky, that the woodcock is most conspicuous.

In summer and fall, these flights take the bird to favored feeding areas, usually wet, boggy land, often partially cleared. Here they remain through the night, feeding chiefly in the hours just after sunset and before sunrise. At dawn they retreat to resting places, where they are more secure in heavier cover. During dry periods, when moist feeding areas are at a premium, gatherings of woodcock may collect. Especially is this true where the birds are most abundant, as in the northern part of their range.

In spring, the evening flight of the woodcock is inspired by a more primal urge: the instinct designed to insure the survival of their race. These courtship ceremonies are perhaps the most fascinating of any North American bird.

They begin after the sun has set, but before it is quite dark. Ghost-like, the male bird drops out of the shadows, and takes a stance on his performing stage, an opening in the woods or at field's edge. There, at brief intervals, it gives vent to a nasal, insect-like buzz, delivered with obvious effort. (The body jerks forward convulsively with each call.)

After a few minutes, the bird flushes, rising in a wide, gradual plane, dark against the last light of day. As the bird circles back over the staging ground, the accelerating wing-beats create a musical twitter. Rising higher and higher, it becomes hard to see in the fading light. Suddenly, the fluttering whistle ceases, and we hear a joyous, wild series of gurgling, chirping notes-the song of love. There follows a rapid, erratic descent, before the gradual glide back to earth.

After the nasal ground call is given, for several minutes the bird again launches skyward, and the performance is repeated. For nearly half an hour the show goes on as darkness gathers.

It is not always certain whether all of this is done to impress an audience, to attract a mate, or just as a means of self-expression. Many times no other bird makes an appearance. Often enough, however, there does seem to be an appreciative audience.

There is a rustle of leaves and a female alights nearby — or simply walks onto the scene. The male then stops calling, lifts high his wings, and walks with an odd, stiff-legged gait towards the female. In the darkness, we hear only the flutter of wings as mating takes place.

Young born of this union are quite active soon after hatching. In but a day or two they are able to follow their mother about and find much of their own food. The instinctively "freeze" when danger threatens, their mottled gray and brown plumage rendering them virtually invisible in the leaf mold. While her young are hiding, the adult bird will usually attempt the broken wing ruse in an effort to decoy the intruder.

Despite their agility and mobility, the young stay together for several weeks. The mother broods her chicks frequently, especially during periods of rainy or cold weather. The family likes to nestle close when resting, even after six or eight weeks.

The woodcock nests throughout the state of Virginia, but not in the numbers found farther north, as in New England or southern Canada. During the fall migration, in October and November, transient birds swell the population.

A good portion of these transient birds move down the Shenandoah Valley, part of a natural flyway extending from Canada to Alabama and Louisiana, famous woodcock wintering territory. In most sections, the valley is broad and relatively flat, presenting no barrier to movement.

Another segment of the population moves down the coast, many of them concentrating at Cape Charles when confronted with the expanse of ocean and bay. Many will decide to spend the winter there if the weather is mild, offering good sport during the shooting season.

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